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EXAMINER

CHOI, PETER Y

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,283	Applicant(s) PENALVA, JOAQUIN ESPUELAS	
	Examiner PETER Y. CHOI	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 56-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 56-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 58, 60, 66, and 67 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 58, 60, 66, and 67, claims 58 and 60 recite that the filter further comprises a biocidal or the biocidal compound, 1-bromo-3-chloro-5.5.-dimethyldantion. Additionally, claims 66 and 67 recite that each of the fibers are previously treated with an anti-bacterial compound and a biocide, wherein the biocide is 1-bromo-3-chloro-5.5.-dimethyldantion. Applicants' specification as originally filed does not set forth that the fibers may be previously treated with an anti-bacterial compound and a biocide or biocidal compound in combination as claimed.

Additionally, regarding claims 58, 60, 66, and 67, Applicants' specification as originally filed does not disclose a biocidal compound comprising the chemical formula 1-bromo-3-chloro-5.5.-dimethyldantion.

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3. Claims 58, 60, 66, and 67 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. A number of factors must be considered in assessing the enablement of an invention, including the following: the breadth of the claims, the amount of experimentation necessary, the guidance provided in the specification, working examples provided, predictability, and the state of the art. See *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988).

Regarding claims 58, 60, 66, and 67, the claims each recite a biocidal compound, 1-bromo-3-chloro-5,5-dimethyl-2-thiazolidine, in combination with an antibacterial compound. However, claims 58 and 60 are each dependent from claims 56 and 57 respectively, each of which recite that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fiber exhibit anti-bacterial properties at temperatures above 200°C. Additionally, claims 66 and 67 each recite that the fibers are previously treated with an antibacterial compound and a biocide, so that the treated fiber exhibit anti-bacterial properties at temperatures above 200°C.

As set forth previously, Applicants' specification does not disclose the combination of an anti-bacterial compound and a biocide or biocidal compound as claimed. Additionally, Applicants' specification does not provide Examples of embodiments comprising the claimed combination of an anti-bacterial compound and a biocide or biocidal compound as claimed. Therefore, Applicants' specification additionally does not set forth how the fibers are previously treated with an anti-bacterial compound and a biocide or biocidal compound as claimed in order

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to arrive at the claimed property. One of ordinary skill in the art would be required to previously treat a fiber with an anti-bacterial compound and a biocide or biocidal compound, and determine in what manner the fiber can be treated with a biocide or biocidal compound, and perform experimentations as to the amounts and/or concentrations of anti-bacterial compound and biocide or biocidal compounds in combination, and then measure the anti-bacterial properties and determine if the filter eliminates *Legionella Pneumophila*, as Applicants' specification does not provide guidance as to the claimed structure. Therefore, the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It should be noted that Applicants' specification at pages 21-27 provides a long list of possible anti-bacterial compounds. However, the claimed invention is directed to a specific combination of Triclosan and 1-bromo-3-chloro-5,5-dimethyl-4-hydroxy-2,2-dioxolene. Applicants do not appear to be enabled for such a specific combination as claimed, for the reasons set forth above.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 56, 58-60, 62, 63, 66-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 56, 58-60, 62, 63, 66, 68, claims 56 and 66, each of the claims recite that the filter is further defined as being constructed as a sandwich, wherein the sandwich is formed from a mixture of nonwoven fabrics. It is unclear exactly what sandwich structure is

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claimed. For example, what layer or layers of the sandwich structure comprise nonwoven fabrics and what layer or layers of the sandwich structure comprise the filter or filters.

Regarding claims 58, 60, 66, and 67, each of the claims recite a biocide or biocidal compound, 1-bromo-3-chloro-5.5.-dimethyldantion. However, 1-bromo-3-chloro-5.5.-dimethyldantion does not appear to be a biocide or biocidal compound known in the art. Additionally, Applicants do not set forth a method of forming the claimed biocide or biocidal compound, as Applicants' specification only sets forth weighing or mixing previously treated fibers without setting forth a method to form the biocide or the fibers with the biocide. Therefore, it is unclear what biocide or biocidal compound is recited.

Additionally, regarding claim 60, the claim recites that the filter of claim 57 further comprises “the biocidal compound, 1-bromo-3-chloro-5.5.-dimethyldantion.” However, claim 57 does not set forth “a biocidal compound.” Therefore, the recitation of “the biocidal compound” lacks proper antecedent basis in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 56, 57, 59, 61-65, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,514,306 to Rohrbach.

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Regarding claims 56, 59, 62, 63, and 68, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSANTM, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a mixture of non-woven fabrics (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSANTM of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claims 56, 59, 62, 63, and 68, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of Legionella Pneumophila in any installation at risk from Legionella Pneumophila proliferation and that the filter eliminates Legionella Pneumophila. However, the limitations are a recitation of the intended use of the filter. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSANTM anti-

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bacterial composition integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claims 56, 59, 62, 63, and 68, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

Regarding claims 56, 59, 62, 63, and 68, the prior art teaches that the filter includes one or more layers of a fibrous media that accomplishes the actual filtration. The prior art does not appear to specifically teach that the filter is further defined as being constructed as a sandwich. However, it naturally flows from the teachings of the prior art that forming the filter having multiple layers, such as three or four or five layers, increases the thickness, strength and rigidity of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by

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varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, wherein the filter comprises three or four or five nonwoven layers, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

Regarding claims 57, 61, 64, and 65, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a non-woven fabric and a component selected from at least polyester (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claims 57, 61, 64, and 65, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of *Legionella Pneumophila* in any installation at risk from *Legionella Pneumophila* proliferation and that the filter eliminates *Legionella Pneumophila*. However, the limitations are a recitation of the intended use of the filter. A

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recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claims 57, 61, 64, and 65, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure TRICLOSAN™ chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention. Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

Regarding claim 59, the antibacterial compound selected from the group is Triclosan (column 4 lines 54-67). It should be noted that the TRICLOSAN™ of the prior art appears to be

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substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claim 61, the antibacterial compound selected from the group is Triclosan (column 4 lines 54-67). It should be noted that the TRICLOSANTM of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claim 62, the fiber is a synthetic polymer chemical fiber (column 5 line 1 to line 55).

Regarding claim 64, the fiber is a synthetic polymer chemical fiber (column 5 line 1 to line 55).

Regarding claims 63 and 65, the prior art teaches that the thermoplastic polymer is typically a polyolefin. Additionally, polyolefins commonly known in the art include polyethylene and polypropylene. Additionally, the prior art expressly incorporates by reference USPN 5,057,368 to Largman as teaching a fiber suitable to practice the invention of the prior art. Largman teaches at column 7 line 64 to column 10 line 40 that the fiber may comprise a polyolefin such as polypropylene and that the fibers are suitable for use in filters. Therefore, the prior art appears to teach the claimed polypropylene fiber. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers are polypropylene fibers, as the prior art teaches that the polypropylene fibers of Largman are suitable to practice the invention of the prior art, and as it is within the level of ordinary skill to choose a suitable commercially available polyolefin such as polypropylene, based on the desired characteristics of the fiber, such as strength and formability.

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Regarding claim 68, the sandwich further includes a non-woven fabric support (column 3 lines 40-46). Additionally, it naturally flows from the teachings of the prior art that forming the filter having multiple layers, such as three or four or five layers, increases the thickness, strength and rigidity of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, further including a nonwoven fabric support layer, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

8. Claims 58, 60, 66, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach, as applied to claims 56, 57, 59, 61-65, and 68 above, in view of US Pub. No. 2003/0170453 to Foss and USPN 6,319,356 to Durkes.

Regarding claims 58 and 60, the prior art appears to suggest that the various embodiments of the prior art may additionally comprise a natural fiber such as cotton (Rohrbach, column 2 lines 1-17) and that the anti-microbial may comprise multiple anti-microbials. Additionally, Rohrbach suggests that offensive odors are problematic with filters. The prior art does not appear to specifically teach the claimed biocide.

Foss teaches that air filters comprising anti-microbial fibers, wherein the fibers may include a blend of natural fibers, such as cotton, and synthetic fibers such as polypropylene

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(Foss, paragraphs 0002-0013, 0089-0120, 0145, 0147, 0167-0180, 0211-0231, 0240, 0264-0278, 0287-0298, 0369, 0370, 0398, 0399, Figure 1C). Foss teaches that the natural fibers are added such that the resulting fabrics have anti-microbial and/or other properties with the same characteristics of natural fabrics, such as color fastness and ability to withstand many washings.

Durkes teaches that it was known in the art to apply a biocide such as bromochlorodimethylhydantoin (BCDMH) to pulp or natural fibers to reduce or prevent the breakdown of the fibers, thereby controlling the resulting odors (Durkes, column 1 line 9 to column 4 line 11, Examples 1-8, claims 1-5). Durkes teaches that BCDMH inhibits the auto-oxidation of unsaturated fatty acids in products comprising pulp fibers, thereby preventing the odors derived from microbiological activity. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the filter comprises natural fibers and BCDMH, as taught by the prior art, Foss, and Durkes, motivated by the desire of forming a conventional filter additionally having natural fiber characteristics and a biocide known in the art as being predictably suitable for preventing unpleasant odors, and applying a known biocide to a conventional filter would yield a predictably resulting filter having odor control properties. It should be noted that the claimed biocide does not appear to be specifically known in the art. Although not claimed, BCDMH appears to be substantially similar to the claimed biocide, or it would have been obvious to one of ordinary skill in the art to use a known biocide having a chemical formula such as 1-bromo-3-chloro-5,5-dimethylhydantoin, as such a formula appears to be predictably flow from the chemical formula bromochlorodimethylhydantoin.

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Regarding claim 66, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a mixture of non-woven fabrics (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claim 66, the prior art teaches that the filter includes one or more layers of a fibrous media that accomplishes the actual filtration. The prior art does not appear to specifically teach that the filter is further defined as being constructed as a sandwich. However, it naturally flows from the teachings of the prior art that forming the filter having multiple layers, such as three or four or five layers, increases the thickness, strength and rigidity of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, wherein the filter comprises three or four or five nonwoven layers, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a

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conventional filter having increased thickness, strength and rigidity suitable for the intended application.

Regarding claim 67, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a non-woven fabric and a component selected from at least polyester (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claims 66 and 67, the prior art appears to suggest that the various embodiments of the prior art may additionally comprise a natural fiber such as cotton (Rohrbach, column 2 lines 1-17) and that the anti-microbial may comprise multiple anti-microbials. Additionally, Rohrbach suggests that offensive odors are problematic with filters. The prior art does not appear to specifically teach the claimed biocide.

Foss teaches that air filters comprising anti-microbial fibers, wherein the fibers may include a blend of natural fibers, such as cotton, and synthetic fibers such as polypropylene (Foss, paragraphs 0002-0013, 0089-0120, 0145, 0147, 0167-0180, 0211-0231, 0240, 0264-0278,

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0287-0298, 0369, 0370, 0398, 0399, Figure 1C). Foss teaches that the natural fibers are added such that the resulting fabrics have anti-microbial and/or other properties with the same characteristics of natural fabrics, such as color fastness and ability to withstand many washings.

Durkes teaches that it was known in the art to apply a biocide such as bromochlorodimethylhydantoin (BCDMH) to pulp or natural fibers to reduce or prevent the breakdown of the fibers, thereby controlling the resulting odors (Durkes, column 1 line 9 to column 4 line 11, Examples 1-8, claims 1-5). Durkes teaches that BCDMH inhibits the auto-oxidation of unsaturated fatty acids in products comprising pulp fibers, thereby preventing the odors derived from microbiological activity. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the filter comprises natural fibers and BCDMH, as taught by the prior art, Foss, and Durkes, motivated by the desire of forming a conventional filter additionally having natural fiber characteristics and a biocide known in the art as being predictably suitable for preventing unpleasant odors, and applying a known biocide to a conventional filter would yield a predictably resulting filter having odor control properties. It should be noted that the claimed biocide does not appear to be specifically known in the art. Although not claimed, BCDMH appears to be substantially similar to the claimed biocide, or it would have been obvious to one of ordinary skill in the art to use a known biocide having a chemical formula such as 1-bromo-3-chloro-5,5-dimethylhydantoin, as such a formula appears to be predictably flow from the chemical formula bromochlorodimethylhydantoin.

Regarding claims 66 and 67, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of Legionella Pneumophila in any installation at risk

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from *Legionella Pneumophila* proliferation and that the filter eliminates *Legionella Pneumophila*. However, the limitations are a recitation of the intended use of the filter. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber and the claimed biocide) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claims 66 and 67, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber and the claimed biocide) as the claimed invention.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber

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having anti-bacterial properties at elevated temperatures by varying the amount of ant-bacterial within the fiber requires only routine skill in the art.

9. Claims 57 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach in view of US Pub. No. 2003/0205137 to Bolduc.

Regarding claims 57 and 61, the prior art appears to teach the claimed filter construction. Additionally, Bolduc teaches a substantially similar microbicidal air filter comprising a nonwoven fibrous material and reinforcing elements, wherein the fibers of the fibrous material comprise an antimicrobial agent such as TRICLOSAN™ which is fully impregnated and integral with the body of the fiber, and wherein the reinforcing elements comprise flexible or semi-flexible type screens made from aluminum, nylon, thermoplastic material, fiberglass type materials, woven fabrics or the like (Bolduc, paragraphs 0002-0021, 0034-0056). Bolduc teaches that the reinforcing elements or screens support the network and define a work area. It would have been additionally obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising the reinforcing screens as taught by Bolduc, motivated by the desire of forming a conventional filter having reinforcing elements or screens to support the network and define a work area.

10. Claims 60 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach in view of Bolduc, as applied to claim 57 above, and further in view of Foss and Durkes.

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Regarding claim 60, the prior art appears to suggest that the various embodiments of the prior art may additionally comprise a natural fiber such as cotton (Rohrbach, column 2 lines 1-17) and that the anti-microbial may comprise multiple anti-microbials. Additionally, Rohrbach suggests that offensive odors are problematic with filters. The prior art does not appear to specifically teach the claimed biocide.

Foss teaches that air filters comprising anti-microbial fibers, wherein the fibers may include a blend of natural fibers, such as cotton, and synthetic fibers such as polypropylene (Foss, paragraphs 0002-0013, 0089-0120, 0145, 0147, 0167-0180, 0211-0231, 0240, 0264-0278, 0287-0298, 0369, 0370, 0398, 0399, Figure 1C). Foss teaches that the natural fibers are added such that the resulting fabrics have anti-microbial and/or other properties with the same characteristics of natural fabrics, such as color fastness and ability to withstand many washings.

Durkes teaches that it was known in the art to apply a biocide such as bromochlorodimethylhydantoin (BCDMH) to pulp or natural fibers to reduce or prevent the breakdown of the fibers, thereby controlling the resulting odors (Durkes, column 1 line 9 to column 4 line 11, Examples 1-8, claims 1-5). Durkes teaches that BCDMH inhibits the auto-oxidation of unsaturated fatty acids in products comprising pulp fibers, thereby preventing the odors derived from microbiological activity. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the filter comprises natural fibers and BCDMH, as taught by the prior art, Foss, and Durkes, motivated by the desire of forming a conventional filter additionally having natural fiber characteristics and a biocide known in the art as being predictably suitable for preventing unpleasant odors, and applying a known biocide to a conventional filter would yield a predictably resulting filter

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having odor control properties. It should be noted that the claimed biocide does not appear to be specifically known in the art. Although not claimed, BCDMH appears to be substantially similar to the claimed biocide, or it would have been obvious to one of ordinary skill in the art to use a known biocide having a chemical formula such as 1-bromo-3-chloro-5,5-dimethylhydantoin, as such a formula appears to be predictably flow from the chemical formula bromochlorodimethylhydantoin.

Regarding claim 67, the prior art appears to teach the claimed filter construction. Additionally, Bolduc teaches a substantially similar microbicidal air filter comprising a nonwoven fibrous material and reinforcing elements, wherein the fibers of the fibrous material comprise an antimicrobial agent such as TRICLOSAN™ which is fully impregnated and integral with the body of the fiber, and wherein the reinforcing elements comprise flexible or semi-flexible type screens made from aluminum, nylon, thermoplastic material, fiberglass type materials, woven fabrics or the like (Bolduc, paragraphs 0002-0021, 0034-0056). Bolduc teaches that the reinforcing elements or screens support the network and define a work area. It would have been additionally obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising the reinforcing screens as taught by Bolduc, motivated by the desire of forming a conventional filter having reinforcing elements or screens to support the network and define a work area.

Response to Arguments

11. Applicants' arguments with respect to claims 56-68 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER Y. CHOI whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Peter Y Choi/
Examiner, Art Unit 1794

/Andrew T Piziali/
Primary Examiner, Art Unit 1794